

AMENDMENTS TO THE SPECIFICATION:

Please the paragraph at **page 1, lines 10-13** as follows:

This application is a continuation of U.S. Application No. 09/571,897 (Attorney Docket No. 591-97-021) titled "Air Dryer Reservoir Module Components" filed May 16, 2000 and assigned to the assignee of the present application, which is a continuation of U.S. patent Application No. 09/030,583, now U.S. Patent No. 6,074,462, which is a continuation-in-part of U.S. Patent Application No. 08/993,931, now U.S. Patent No. 5,917,139 (Attorney Docket Number 591-96-006) titled "Air Dryer Reservoir Module" filed December 18, 1997 and assigned to the assignee of the present application.

Please amend the paragraph at **page 3, lines 21-28** as follows:

A purge volume can be built into the end of the secondary reservoir to which the air dryer is attached. An internal baffle separates the secondary reservoir ~~reservior~~ volume from the purge volume. Internal communication passages connect the secondary reservoir ~~reservior~~ and purge volume to the air dryer. The dryer reservoir ~~reservior~~ module can also be constructed to equalize the pressure between the primary reservoir and the secondary reservoir, such that if the vehicle is parked for a given period of time the pressure cannot be replenished. Thereby limiting the use of the vehicle with a severely leaking reservoir ~~reservior~~.

Please amend the paragraph at **page 4, lines 18 and 19** as follows:

FIG. 6 is a schematic illustration showing the components included in one embodiment of the air dryer reservoir module; and

Please amend the paragraphs at **page 4, lines 20-23** as follows:

FIG. 6A is a view of an air dryer reservoir module that integrates the components shown in FIG. 6.

Please amend the paragraphs at **page 4, lines 20-23** as follows:

FIG. 6A is a view of an air dryer reservoir module that integrates the components shown in FIG. 6.

~~FIG. 7 is a view of an air dryer reservoir module according to the present invention with a baffle separating the reservoir into two chambers; and,~~

~~FIG. 8 is an illustration of a pressure equalizing pneumatic circuit for connecting the two reservoir used with the present invention.~~

Please amend the paragraph at **page 6, line 26 to page 7, line 26** as follows:

Referring now to FIGS. 4 and 5, the air dryer reservoir module 10 operates as follows. Charge air from the air compressor 20 enters the air dryer reservoir module 10 at its supply port 31, flows through a purge valve 32 to the desiccant bed 33, fills the purge volume 34, flows through a purge orifice (not shown) and flows out a single check valve (not shown). This represents the same charge cycle as used in an AlliedSignal AD-9 or AD-IP air dryer. From the delivery of the single check valve the charge air flows to the supply of the primary protection valve 35 and secondary protection valve 36. Charge air pressure builds until the protection valves 35, 36 open, allowing air to flow to the primary reservoir 18 and the secondary reservoir 12. Charge air pressure continues to build until the pressure sensors 37 or a mechanical governor (not shown) reach cutout pressure. At cutout pressure the three way solenoid 39 or the mechanical governor opens, sending a control signal through compressor unloader port 40, unloading the compressor 20 and opening the purge valve 32 purging the air dryer 14. The purge cycle is the same as that of the AlliedSignal AD-9 or AD-IP air dryer. The air dryer reservoir module's 10 integrated component configuration makes it compatible with both integral purge and system purge type air dryer operation and both mechanical and electrical type governors. This allows a single dual function electric solenoid to control the air compressor 20 unloading function and to purge the air dryer 14 using both the primary and secondary service reservoirs 18 and 12 respectively.

This configuration also allows both reservoirs 12, 18 to purge simultaneously thereby reducing the total system pressure drop required to regenerate the desiccant bed 33 with system purge type air dryer operation. Use of pressure protection valves 35 and 36 instead of single check valves 66 and 64 reduces compressor 20 cycling. Without the use of check valves 64 and 66 primary reservoir 18 and secondary reservoir 12 are common at pressures above the protection valves 35, 36 opening pressure. Therefore, pressure differentials do not develop between primary reservoir 18 and secondary reservoir 12 as air is consumed. Pressure differentials can develop in standard three reservoir system due to improperly sized reservoirs and use of accessory systems, causing the compressor to cutin before the air pressures in both reservoirs 12, 18 have dropped to the cutin pressure.

Please amend the paragraph at **page 7, line 27 to page 8, line 12** as follows:

The air dryer reservoir module 10 can be designed to utilize service reservoir air to purge the desiccant, i.e., supply purge. The operation of the air dryer reservoir module 10 in a supply purge mode will be similar to that of an AlliedSignal AD-SP air dryer. The integral pressure protection valves 35, 36 will eliminate the need for externally plumbed protection valves. The internal protection valves 35 and 36, when open will allow air to flow back to a special two position three way system purge solenoid, located where the three way solenoid 39 is in the integral purge design. The special two position three way system purge solenoid will be controlled by the EBS ECU with inputs from the pressure sensors 37 through sensors/solenoid I/O 44. The system purge solenoid will be designed to communicate a control signal to the compressor 20 unloader and the air dryer purge valve 32 independently. At cutout pressure the system purge solenoid will unload the compressor and open the purge valve 32. The system purge solenoid will then close only the purge valve 32 after a predetermined amount of system air is used to purge the dryer's desiccant bed 33. At cutin pressure the system purge solenoid will then load the compressor 20 starting the cycle over.

Please amend the paragraph at **page 8, line 13 to page 9, line 2** as follows:

Referring now to Figures 6 and 6A-figure 6, the embodiment of the illustrated air dryer reservoir module 10 operates as follows. Charge air from the air compressor 20 enters the air dryer reservoir module 10 at its supply port 31, fills the purge volume 34, and flows out a single check valve 13. Check valve isolates the primary reservoir 18 and the secondary reservoir 12 from the output of air dryer 14. An over pressure safety valve 21 which is set for 150 psi is disposed at the outlet ~~from form~~ air dryer 14. From the delivery of the single check valve 13 the charge air flows to the supply of the primary protection valve 35 and secondary protection valve 36. Charge air pressure builds until the protection valves 35, 36 open, allowing air to flow to the primary reservoir 18 and the secondary reservoir 12. Charge air pressure continues to build at the outlet of check valve 13 until a mechanical governor 15, which is connected to the outlet of check valve 13, reach cutout pressure. At cutout pressure, which is set at 130 ± 5 psi, the mechanical governor 15 opens, providing a pressure drop signal through line 19, to-unloading the compressor 20 and providing a pneumatic signal along line 17 for initiating purging of the air dryer 14 with the compressed air contained in purge volume 34. Compressor 20 remains unloaded until the pressure to governor 15 falls below the cutin pressure, which is set at 105 psi. At the cutin pressure the governor 15 closes and the compressor is loaded to again supply compressed air to the inlet 31 of air dryer 14.

Please amend the paragraph at **page 9, lines 3-12** as follows:

The primary protection valve 35 is set to open at 103 ± 3 psi and to close at approximately 95 psi. The secondary protection valve 36 is set to open at 109 ± 3 psi and to close at approximately 100 psi. When both protection valve 35 and ~~36~~ 35 are open the primary reservoir 18 and the secondary reservoir 12 are in free fluid communication. Secondary reservoir 12 provides compressed air to a vehicle leveling supply port through an accessory protection valve 41 which is set to open at 85 ± 3 psi and to close at approximately 72 to 83 psi. Secondary reservoir 12 also provides

compressed air to vehicle accessories through an accessory protection valve 43 which is set to open at 55 ± 3 psi and to close at approximately 45 to 55 psi.

Please amend the paragraph at **page 10, lines 5-20** as follows:

Referring now to Figures 4 and 7 there is shown the secondary reservoir 12 with an integral purge volume 34. A baffle 53 separates the purge volume 34 from the secondary reservoir 12. An internal tube 54 extends through the purge volume 34 to connect the reservoir 12 through connections within housing 16 to the air dryer 14. A connection 55 connects the purge volume 34 through connections within ~~within~~ housing 15 to the air dryer 14. This construction eliminates external lines for connecting the air dryer 14 to the purge volume 34 and the secondary reservoir ~~reservoir~~ 12. External lines have the potential for leak points, and create customer handling and mounting concerns. Building the purge volume 34 required for the air dryer into the secondary reservoir 12 allows the use of a compact system purge air dryer desiccant cartridge and this minimizes the space required. Baffle 53 has tube 54 attached through it and the tube 54 extends through the purge volume 34 and terminates at the head of the reservoir. The head of the reservoir has attached to it the housing 16 which is integral with air dryer 14. The air dryer communicates with both volumes 12 and 34 via separate passages 54 and 55.

Please amend the paragraph at **page 10, line 29 through page 11, line 26** as follows:

As shown in ~~figures~~ Figure 6 and 8 and described above, pressure protection valves 35 and 36 are used to supply compressed air to the primary reservoir 18 and the secondary reservoir 12. The pressure protection valves 35, 36 are set to pressurize the primary reservoir 18 first, provided the same pressure exists within the primary and secondary reservoirs. At full system pressure the pressure protection valves 35, 36 are open, insuring equal pressure in both the primary and secondary reservoirs 18 and 12. However, the pressure protection valve opening pressure is dependent upon the

downstream reservoir pressure, therefore, if the reservoir pressures are not equal the ~~pressure~~ pressure-protection valve which has the highest downstream pressure will open first. Parking the vehicle overnight or for extended periods of time may cause the primary and secondary reservoir pressures to become unequal. During recharging of the air system the secondary reservoir 12 may charge before the primary reservoir 18. It may be desirable to limit the duration the vehicle can be operated in the condition where one reservoir has significantly reduced pressure. By using a pressure equalizing mechanism, such as a connecting line with a suitable ~~orifice~~ orifice-57, the pressures in the reservoirs 12 and 18 slowly become equal so that during recharging of the air system the primary reservoir 18 will charge first. Furthermore, if the primary reservoir 18 has become ~~ruptured or has a severed~~ ruptured or has a severe leak, again the pressure in both reservoirs 18 and 18 will migrate to 0 psi; however, the primary reservoir 18 can be recharged, but the essential accessories and air suspension will not be pressurized ~~because~~ because the secondary reservoir 12 cannot be recharged. The pressure equalizing mechanism 57 will cause the pressure in both reservoirs 12 and 18 to be equal, thereby charging the primary reservoir 18 first and limiting the use of the vehicle after a severe leak in either the primary or ~~secondary~~ secondary-reservoirs 18 and 12.